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**Auto-correlation ARPES study of Pb-Bi2201** MAKOTO HASHIMOTO, Stanford University / LBL, RUIHUA HE, JEAN-PIERRE TESTAUD, WORAWAT MEEVASANA , ROB MOORE, DONGHUI LU, YOSHIYUKI YOSHIDA, HIROSHI EISAKI, THOMAS DEVEREAUX, ZAHID HUSSAIN, ZHI-XUN SHEN — It is important to understand the electronic structure in momentum (k-) and real (r-) spaces in a unified picture. In high-temperature (Tc) cuprates, the different shape of superconducting gap anisotropies have been found by scanning tunneling microscopy (STM) and angle-resolved photoemission spectroscopy (ARPES). While the ARPES studies show simple d-wave superconducting gap around the node below Tc, the STM studies which approach superconducting gap anisotropy in k-space by employing the "octet model" show the deviation from simple d-wave superconducting gap especially in the underdoped region. To explore this issue, we study auto-correlation (AC-) ARPES spectra of optimally doped Pb-Bi2201 measured at T << Tc, Tc < T << T*, and T > T*. The obtained AC-ARPES spectra show very similar behavior to the reported Fourier transformed STM spectra. In the presentation, we will compare these ARPES and STM results and discuss the relationship between r- and k-space focusing on the superconducting gap anisotropy.

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